

#### ABSTRACT OF THE DISCLOSURE

A method for separating metallic carbon nanotubes and semi-conducting carbon nanotubes includes providing a suspension containing a plurality of individual metallic carbon nanotubes and semi-conducting carbon nanotubes in a liquid, for which the dielectric constant  $\epsilon_L$  meets the requirement:  $\epsilon_M > \epsilon_L > \epsilon_H$ , wherein  $\epsilon_M$  is the dielectric constant of the metallic carbon nanotubes and  $\epsilon_H$  is the dielectric constant of the semi-conducting carbon nanotubes. A non-homogeneous electric alternating field is applied to the suspension to create spatially separate species of the metallic carbon nanotubes and the semi-conducting carbon nanotubes. At least one of the separate species is then removed.

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